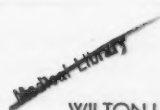


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GUY P. JONES
Editor

BRUCELLOSIS IN CALIFORNIA

(Undulant Fever)

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Brucellosis was regarded once as a rare disease restricted largely to the Mediterranean area. It is now recognized as being world-wide and is most prevalent in those areas where *Brucella* infections of cattle, hogs, and goats, are wide-spread.

It was recognized as a clinical entity as early as 1860 as Malta Fever, but it was not until the survey of 1904-1907 by the British Commission that convincing proof was obtained that the drinking of raw goat's milk was the common source of infection. The first case known to have contracted the infection in this Country was in a nurse who had never been out of the Country. The diagnosis of this case was established by Craig in 1905. In 1911, cases having contact with goats began to be recognized in Texas, Arizona, and New Mexico. In 1922, Lake of the United States Public Health Service, investigated 35 cases in Arizona and traced the infection to the milk of infected goats. Since then, the disease has been recognized in all parts of the United States.

Table No. I shows the cases and deaths in California since brucellosis has been a reportable disease—

There has been a fairly constant increase in the number of cases reported. Some of this increase may not be due to an actual increase in the incidence but more likely to a better understanding of the disease on the part of physicians, improved laboratory diagnostic methods, and extension of diagnostic laboratory service.

While few people die of this disease, nevertheless it is a serious disease because of the fact that it has a tendency to be chronic, of long duration, and convalescence often extends into months and even years. Clinically, it may be confused with typhoid fever,

TABLE No. I—BRUCELLOSIS
Cases and Deaths 1927-1943

Year	Cases	Case rate*	Deaths
1927	15	.30	--
1928	11	.21	--
1929	73	1.32	1
1930	120	2.10	6
1931	106	1.82	3
1932	109	1.83	2
1933	136	2.24	1
1934	158	2.55	3
1935	152	2.40	3
1936	175	2.71	1
1937	188	2.86	1
1938	244	3.65	4
1939	279	4.09	4
1940	278	4.01	5
1941	316	4.48	4
1942	215	2.89	2
1943	237	3.04	1
Total	2,812		41

* Per 100,000 population based on 1930-1940 census estimates.

tuberculosis, infectious arthritis, malaria, subacute bacterial endocarditis, and many other conditions. As a rule, the diagnosis can be made only with the aid of the laboratory.

The organism may be recovered from the blood and occasionally is demonstrated in the urine and feces of patients. The most common laboratory aid is the agglutination test. This test is subject to the same limitations as the Widal in typhoid fever. Specimens should show an increase in titre as the disease progresses. The intradermal skin test using killed *Brucella* organisms is useful in the same sense that a tuberculin test is useful in the diagnosis of tuberculosis and with the same limitations. The opsonocytophagic index is useful also. The bloods of those having no past or

present history of infection show little or no phagocytosis; the bloods of active cases show some phagocytosis; while the bloods of those who have recovered from brucellosis show marked opsonocytophagic power.

As a rule, the melitensis (goat) strain of *Brucella* produces the more acute and severe infection, the porcine (hog) strain ranks next, while the abortus (cattle) strain is the mildest. The abortus strain is the one that clinically is most difficult to diagnose because the type of fever curve (undulating) common in the melitensis strain, is usually absent.

In California there are about twice as many cases in males as there are in females. Of 1,569 cases reported in this State from January, 1938, to December, 1943, 1,065 or 68.1 per cent were males and 500 or 31.9 per cent were females. There is no satisfactory explanation of this difference. It is frequently stated that occupational exposure is more likely to take place in males and because they are the exposed group they have the most cases. However, there are as many cases of brucellosis in housewives in California as there are of all the cases that could have possibly acquired their infections through their occupations.

TABLE No. II—BRUCELLOSIS
By Age Groups 1927-1943

Age group	Cases	Per cent
Under 1 year	1	.04
1-4 years	41	1.53
5-9 years	121	4.53
10-14 years	135	5.05
15-19 years	167	6.24
20-24 years	204	7.63
25-34 years	642	24.01
35-44 years	605	22.62
45-54 years	422	15.78
55+ years	336	12.57
	2,674	100.00
Adult	67	
Age not stated	71	
Total	2,812	

In an analysis of 2,812 cases (Table No. II), we find that the highest incidence is in the adult groups, especially between the ages of 25 and 45, 1,247 cases or 46.63 per cent cases falling in this age group. Children under 10 account for 6 per cent (163 cases) of all cases. It was formerly thought that children were singularly resistant to the disease, but it has been found that the symptoms in children are mild and the disease is overlooked or confused with other children's diseases. The high incidence in adults is difficult to explain. The disease may be acquired by several different routes: (1) by ingestion of milk or milk products containing the viable organism; (2) by contact with aborting animals and the products of abortion; (3) by contact with infected meat; and (4) by laboratory infections.

TABLE No. III—BRUCELLOSIS
Analysis of Cases by Occupation 1938-1943

Occupation	Cases	Per cent
Meat Handlers	65	4.48
Medical Profession	36	2.48
Milk Handlers	60	4.14
Ranchers	101	6.97
Housewives	270	18.62
Children under 10	66	4.55
Miscellaneous *	852	58.76
	1,450	100.00
Not stated	119	
Total	1,569	

* Does not include farming, dairying, ranching, meat handling, or any one with contact with stock.

In Table No. III an analysis of the occupations of 1,450 cases is presented, and the occupational groupings are defined as follows:

- "Meat Handlers"—anyone whose occupation is given as a butcher, slaughterhouse worker, or packing house employee. Veterinarians were placed in this group because many are meat inspectors, although some acquire their infections when treating infected animals.
- "Medical Profession"—physicians, dentists, nurses, and laboratory technicians.
- "Milk Handlers"—anyone employed on a dairy, in a creamery, in any milk product manufacturing plant, or in dairy delivery.
- "Ranchers"—includes farmers, ranchers, farm laborers and stock men. Undoubtedly many classified as ranchers were orchard owners or farmers with no livestock on their places.
- "Housewives"—undoubtedly includes many women who do little or no cooking.
- "Miscellaneous"—includes the general occupational groups—teachers, clerks, business men, mechanical trades, et cetera; in fact, everyone whose employment does not involve contact with animals, milk, ranches, meats, laboratories; and children over 10.

The impression is frequently given that most brucellosis is contracted in an industrial occupation. Our records indicate that only 262 of 18.07 per cent of 1,450 cases could possibly be attributed to occupation. Even this is a maximum percentage because many individuals included in this 18.07 per cent had little or no contact with livestock or meat products.

The housewife forms a very large group, 270 or 18.62 per cent of the cases. A number of these are individuals who do not work in kitchens, although the majority probably prepare meals and handle raw meat

purchased in the meat market. Adding these two groups, we have 532 or 36.69 per cent of the 1,450 cases in which Brucella infections may have been an occupational disease.

The majority of cases; namely, 918 or 63.31 per cent were in individuals whose most probable source of infection was through drinking raw milk or cream, or eating milk products made of raw milk. Obviously for this group, brucellosis is a preventable disease.

In Table No. IV, the incidence by counties is shown for two five year periods—1934 to 1938 and 1939 to 1943. There was a 44.5 per cent increase in the number of cases reported in the last five year period. While formerly the increase in the number of cases was considered to be a reflection of better reporting, better laboratory facilities, and better recognition of the disease, the difference in the 1934 to 1938 and the 1939 to 1943 periods can not be explained entirely on that basis. Evidently the disease is definitely on the increase. In 35 counties there was an increase of cases, while in 16 counties there was a decrease. It is admitted that in some localities the rates were calculated on very small numbers; however, the numerical data are considered comparable for the two five year periods.

Nevertheless, Colusa County with 15 cases during the past five years and a rate of 30.84; Tehama, with 15 cases and a rate of 20.81; Plumas County with 9 cases and a rate of 15.0; Kern County with 110 cases and a rate of 15.53; and Yolo with 18 cases and a rate of 13.00; represent a high incidence in comparison with the State rate of 3.75. On the other hand, the counties of San Francisco, with a rate of 0.50; Alameda with a rate of 1.02; Contra Costa, 1.36; San Diego, 1.34; San Joaquin, 1.45; and Solano 0.80—have exceedingly low rates notwithstanding the fact that they have large populations and good diagnostic centers. Los Angeles has a rate slightly lower than the State. The exceedingly low rate in San Francisco is undoubtedly due to the fact that for eleven years all fluid milk in the city has been pasteurized. Careful perusal of the map strongly supports the statement that the number of cases of brucellosis in the community is in direct proportion to the amount of unpasteurized milk consumed.

During the past few years, numerous small outbreaks have been reported in rural areas. Only recently 19 cases were reported from one small rural community where the disease had not been prevalent previously. Investigation determined that all the cases had had raw milk from one source. Testing the herd on this dairy revealed that 75 per cent of the herd were reactors, indicating an unusually heavy infection, especially inasmuch as the herd had been tested a few years previously. However, since that time additional

TABLE No. IV
BRUCELLOSIS

By Counties

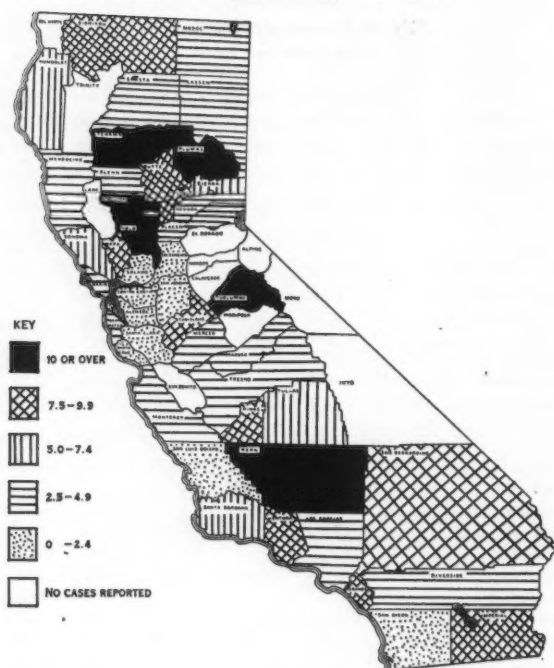
1934-38 Compared with 1939-43

Cases and Case Rates

County	Cases 1934- 1938	5 Year average	Case rate*	Cases 1939- 1943	5 Year average	Case rate*
Alameda	13	2.6	.52	26	5.2	1.02
Alpine	--	--	--	--	--	--
Amador	--	--	--	--	--	--
Butte	9	1.8	4.55	17	3.4	7.74
Calaveras	--	--	--	--	--	--
Colusa	2	.4	4.01	15	3.0	30.84
Contra Costa	2	.4	.43	7	1.4	1.36
Del Norte	--	--	--	--	--	--
El Dorado	1	.2	1.76	--	--	--
Fresno	12	2.4	1.45	44	8.8	4.81
Glenn	--	--	--	3	.6	4.86
Humboldt	11	2.2	4.91	12	2.4	5.20
Imperial	7	1.4	2.33	28	5.6	9.40
Inyo	--	--	--	--	--	--
Kern	29	5.8	5.02	110	22.0	15.53
Kings	3	.6	1.90	17	3.4	9.34
Lake	1	.2	2.59	--	--	--
Lassen	--	--	--	3	.6	4.08
Los Angeles	381	76.2	2.96	484	96.8	3.39
Madera	--	--	--	5	1.0	4.15
Marin	4	.8	1.64	12	2.4	4.42
Mariposa	--	--	--	--	--	--
Mendocino	--	--	--	7	1.4	4.93
Merced	14	2.8	6.49	11	2.2	4.56
Modoc	--	--	--	2	.4	4.55
Mono	--	--	--	--	--	--
Monterey	10	2.0	3.04	18	3.6	4.77
Napa	8	1.6	6.06	11	2.2	7.53
Nevada	--	--	--	3	.6	2.94
Orange	31	6.2	4.91	55	11.0	8.32
Placer	3	.6	2.24	4	.8	2.80
Plumas	--	--	--	9	1.8	15.00
Riverside	27	5.4	5.60	27	5.4	4.97
Sacramento	6	1.2	.75	10	2.0	1.15
San Benito	2	.4	3.52	--	--	--
San Bernardino	96	19.2	12.72	75	15.0	9.12
San Diego	20	4.0	1.54	20	4.0	1.34
San Francisco	18	3.6	.57	16	3.2	.50
San Joaquin	5	1.0	.82	10	2.0	1.45
San Luis Obispo	5	1.0	3.14	4	.8	2.40
San Mateo	34	6.8	6.88	16	3.2	2.76
Santa Barbara	25	5.0	7.30	19	3.8	5.33
Santa Clara	15	3.0	1.83	21	4.2	2.35
Santa Cruz	5	1.0	2.37	5	1.0	2.17
Shasta	1	.2	.86	4	.8	2.61
Sierra	--	--	--	1	.2	6.45
Siskiyou	9	1.8	6.56	11	2.2	7.59
Solano	4	.8	1.74	2	.4	.80
Sonoma	16	3.2	4.81	24	4.8	6.87
Stanislaus	12	2.4	3.53	31	6.2	8.04
Sutter	6	1.2	6.99	11	2.2	11.46
Tehama	4	.8	5.65	15	3.0	20.81
Trinity	1	.2	5.66	--	--	--
Tulare	27	5.4	5.62	30	6.0	5.41
Tuolumne	1	.2	1.94	6	1.2	10.82
Ventura	14	2.8	4.26	29	5.8	8.11
Yolo	4	.8	3.09	18	3.6	13.00
Yuba	7	1.4	9.40	8	1.6	9.02
Not Allocated	12	2.4	--	9	1.8	--
Totals	917	183.4	2.84	1,325	265.0	3.75

* Per 100,000 population based on 1930-1940 census estimates.

MAP NO. 1—BRUCELLOSIS
Rates per 100,000 population
Based on 5 year average 1939-1943



stock had been added. Obviously, pasteurization of this milk supply was the only solution to the problem.

In tracing the source of cases of this disease, we must keep in mind the fact that the incubation period is variable and may be a number of weeks and often the onset is insidious. It is not like typhoid with a relatively short incubation period of 7 to 21 days. Also, it must be kept in mind that in cream or cream products *Brucella* organisms may be concentrated and cream is much harder to trace—it is a customary addition to a cup of coffee, cereal, certain pies and puddings, and is not so likely to be remembered as readily by the infected individual as a glass of milk from their daily milk supply.

In conclusion, it may be said that at least two-thirds of all patients having brucellosis in California contract their infections through the use of raw milk or raw milk products. Pasteurization of milk and milk products destroys the *Brucella* organisms. Therefore, if all milk and milk products were pasteurized, we would eliminate two-thirds of all our brucellosis infections in humans. When we also consider that other diseases, such as typhoid, paratyphoid, bacillary dysentery, scarlet fever, septic sore throat, diphtheria and tuberculosis, may also be transmitted by means of raw milk, it seems to be imperative that pasteurization of all milk be carried out as a public health protection and precaution.

EPIDEMIOLOGY OF TUBERCULOSIS IN CALIFORNIA

The Bureau of Epidemiology has adopted a standard program in the preparation of complete data on the morbidity of tuberculosis among civilians in California. A series of 10 tables, covering the epidemiology of the disease, is printed herewith. The information in these tables may be summarized as follows:

Status of Infection

Out of a total of 7,879 cases of tuberculosis in civilians reported in California in 1943, classifications are made as follows:

More advanced.....	41.69%
Moderately advanced.....	34.00%
Minimal.....	20.60%

In 1942 far advanced cases constituted 43.6 per cent of the total and in 1941, 45.16 per cent of the total. In 1942 moderately advanced cases constituted 33.71 per cent, and in 1941, 34.32 per cent of the total. In 1942, cases with a minimal status constituted 21.26 per cent and in 1941, 18.49 per cent. It would appear, therefore, that the percentage of far advanced cases and moderately advanced cases has been reduced slightly, while a slight increase has occurred in the

TABLE NO. 1
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
REPORTING AGENCY ACCORDING TO STATUS OF INFECTION AT TIME
OF REPORT

Reporting agency	Minimal	Moderately advanced	Status of infection		Other inactive forms**	Not stated	Total
			Far advanced	Other active forms*			
Private physician or private clinic.....	297	647	483	21	47	287	1782
Private hospital or private sanatorium.....	106	230	310		1	60	707
Positive State laboratory follow-up***	1	10	22			10	43
Public hospital or public sanatorium.....	331	571	1131	2	6	189	2230
Public clinic.....	612	706	504	36	128	127	2113
Death certificate or coroner.....	1	3	218	1			223
Federal agency.....	50	156	227	3	1	111	548
State agency.....	61	86	58		17	11	233
1943—Total cases.....	1459	2409	2953	63	200	795	7879
1943—Per cent of total cases.....	20.60	34.00	41.69	.89	2.82		100.00
1942—Total cases.....	1333	2114	2734		90	1348	7619
1942—Per cent of total cases.....	21.26	33.71	43.60		1.43		100.00
1941—Total cases.....	1040	1930	2540		114	1686	7310
1941—Per cent of total cases.....	18.49	34.32	45.16		2.03		100.00

* Other active forms includes quiescent and chronic tuberculosis.

** Other inactive forms includes such terms as "apparently arrested," "arrested," "obscure," "healed." Entered as missed cases when residence data indicated that cases were acquired in California and reported late.

*** Positive State laboratory follow-up represent cases not reported by person or agency submitting sputum for examination, but in reply to letters from State Department of Public Health for follow-up on the positive sputum or positive animal inoculation from the State Hygienic Laboratory.

number of cases with a minimal status of infection. This would indicate that the machinery for the discovery of early tuberculosis is functioning properly.

Laboratory Reports

Three separate tables on laboratory reports are printed herewith: (1) According to place confined at time of report; (2) By reporting agency; (3) By counties.

Out of 7,879 cases of tuberculosis reported in 1943, 1,521 with positive sputum tests were confined in a sanitarium, hospital or rest home; 795 with positive tests lived in private homes or apartments; private

TABLE NO. II
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
LABORATORY FINDINGS ACCORDING TO PLACE CONFINED AT TIME OF REPORT

Laboratory report	Sanatorium or hospital or rest home	Private home or apartment	Other housing units	Unknown	Total	Per cent of total
Positive sputum.....	1521	795	86	50	2452	62.69
Negative sputum.....	711	536	33	24	1304	33.34
Other positive tests.....	50	50	2	3	105	2.68
Autopsy.....	29	18	3		50	1.28
Bacteriological work not stated but includes other clinical tests.....	1437	2143	249	139	3968	
1943—Total cases.....	3748	3542	373	216	7879	100.00
1943—Per cent of total cases.....	48.91	46.22	4.87		100.00	
1942—Total cases.....	3797	3233	406	183	7619	
1942—Per cent of total cases.....	51.06	43.48	5.48		100.00	
1941—Total cases.....	3852	2768	368	322	7310	
1941—Per cent of total cases.....	55.13	39.61	5.26		100.00	

TABLE NO. III
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
LABORATORY REPORT BY REPORTING AGENCY

Laboratory reports	Reporting agency										Total
	Private physician or clinic	Private hospital or sanitarium	Positive state laboratory follow-up*	Public hospital or sanitarium	Public clinic	Death certificate or coroner	Federal agency	State agency			
Positive sputum.....	568	355	34	906	334	5	226	24			2452
Negative sputum.....	330	166		382	216		194	16			1304
Other positive tests.....	30	10	9	37	15		4				105
Autopsy.....	6	5		19	2	17	1				50
Bacteriological work not stated, but includes other clinical tests.....	848	171		886	1540	201	123	193			3968
1943—Total cases.....	1782	707	43	2230	2113	223	548	233			7879
1943—Per cent of total cases.....	22.62	8.97	.54	28.30	26.82	2.83	6.96	2.96			100.00
1942—Total cases.....	1608	574	68	2407	2004	118	654	176			7619
1942—Per cent of total cases.....	21.11	7.53	.89	31.59	26.43	1.55	8.59	2.31			100.00
1941—Total cases.....	1675	549	80	2406	1776	127	556	141			7310
1941—Per cent of total cases.....	22.91	7.51	1.09	32.91	24.30	1.74	7.61	1.93			100.00

* Positive State laboratory follow-up represent cases not reported by person or agency submitting sputum for examination, but in reply to letters from State Department of Public Health for follow-up on the positive sputum or positive animal inoculation for the State Hygienic Laboratory.

physicians and clinics reported 568 cases with positive sputum; while tuberculosis hospitals and clinics reported 1,240 such cases.

Length of Residence in California

In 1943, 12.49 per cent of all cases of civilian tuberculosis reported were in individuals who had lived in California less than one year. Of these, 2.61

TABLE NO. IV
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
LENGTH OF RESIDENCE IN CALIFORNIA

	1 month or less	2-5 months	6 months	7-12 months	Less than 1 year*	Total under 1 year*	1 year	2 years	3 years	4 years and over	Not stated	Total
Alameda.....	1	16	6	9		32	23	15	22	312	106	510
Alpine.....												
Amador.....		1				1				11	2	14
Butte.....	1	1				2				15	6	24
Calaveras.....								1		5		6
Contra Costa.....		8	1	4	1	14	5	2	8	85	12	126
Del Norte.....												6
El Dorado.....									1	8		9
Fresno.....		3	1			4	4	2	4	111	5	130
Glenn.....		1				1				4		5
Humboldt.....										20	1	21
Imperial.....				1		1	1			36	5	33
Inyo.....							1			14	28	43
Kern.....		6	1	2	1	10	9	1	2	158	1	181
Kings.....		1		1		2	1	2		18	1	24
Lake.....										3	1	4
Lassen.....				1		1	1			6	3	11
Los Angeles.....	18	85	22	56	15	196	122	93	83	1815	357	2666
Madera.....										17	5	23
Marina.....		4	1			5	3		1	27	15	51
Mariposa.....										4	2	6
Mendocino.....										20	18	38
Mered.....		1				1				45	4	50
Modoc.....		2	12	8		22	2		1	24	7	56
Mono.....										1		1
Monterey.....		3				3	2	4	3	52	7	71
Napa.....							3	1		37	12	53
Nevada.....							1			15	5	22
Orange.....				3		4	2	1	1	79	19	106
Placer.....								1		17	2	20
Plumas.....										6		6
Riverside.....		1		2		3	3	6	3	73	24	112
Sacramento.....	1	2	1	4		8	7	6	6	224	29	280
San Benito.....							3	6	2	9	22	33
San Bernardino.....				1		14	24	11	8	169	12	233
San Diego.....		1	3			36	43	33	19	769	75	975
San Francisco.....	2	8	9	17		36	5	4	6	151	27	196
San Joaquin.....			1	2		3	5			9	7	21
San Luis Obispo.....	1	1				2	1		2	63	9	84
San Mateo.....		2		1		3	2	4	3	63	9	84
Santa Barbara.....		3	1	2		6	7	1		75	5	94
Santa Clara.....		1	2	1	1	5	1		7	134	23	170
Shasta.....	2			1		3				25	12	40
Sierra.....										11	3	15
Siakiyou.....			1			1	1		1	10	1	14
Solano.....		4	3	2		9	4	1	1	42	20	77
Sonoma.....							2	3	2	96	20	123
Stanislaus.....		1		2		3	2	1	1	39	14	60
Sutter.....								1		11	1	13
Tehama.....										4		4
Trinity.....												
Tulare.....	2		1			3	4	2	3	46	19	77
Tuolumne.....										5		5
Ventura.....	2	4	1	1	1	9	4	5	2	104	31	155
Yolo.....		1		1		2	1			12	4	19
Yuba.....										19	2	21
Not allocated.....	147	213	20	47	12	439	39	15	9	35	78	615
1943—Total cases.....	178	378	87	176	32	851	338	219	207	5198	1068	7879
1943—Per cent of total cases.....	2.61	5.55	1.28	2.58	.47	12.49	4.96	3.21	3.04	76.30		100.00
1942—Total cases.....	Not tabulated					543	248	200	194	5328	1107	7619
1942—Per cent of total cases.....	Not tabulated					8.34	3.81	3.07	2.97	81.80		100.00
1941—Total cases.....	189	140	39	73	26	467	180	168	194	5137	1164	7310
1941—Per cent of total cases.....	3.08	2.28	.63	1.19	.42	7.60	2.93	2.73	3.16	83.58		100.00

* Actual time not stated.

** Total of first five columns (residence under 1 year).

per cent had lived in the State for less than one month and 5.55 per cent had been in California from two to five months. Those who lived in the State for one year constituted 4.96 per cent; two years, 3.21 per cent; three years, 3.04 per cent; four years and over, 76.3

TABLE NO. V
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
BY COUNTIES ACCORDING TO STATUS OF INFECTION

County	Status of infection						Total	Cases not reported before death
	Minimal	Moderately advanced	Far advanced	Other active forms	Other inactive forms*	Not stated		
Alameda	55	122	129	29	28	147	510	53
Alpine								
Amador		2	11			1	14	4
Butte	5	9	8			2	24	4
Calaveras		2	1			4	7	1
Colusa		2	4				6	1
Contra Costa	25	50	37			14	126	4
Del Norte	2	2	3			1	8	3
El Dorado		2	1			1	4	
Fresno	20	26	71	1	1	11	130	8
Glenn		1	4				5	3
Humboldt	4	4	10			3	21	3
Imperial	3	9	14			7	33	2
Inyo	5	3	14			24	43	3
Kern	35	57	53		21	15	181	15
Kings	4	7	11			1	24	4
Lake			4				4	2
Lassen		3	6			2	11	5
Los Angeles	491	928	1056	7	13	171	2666	185
Madera	4	10	5			4	23	1
Marin	14	15	10	3	4	5	51	3
Mariposa		1	4			1	6	2
Mendocino		7	22		1	8	38	19
Merced	11	16	19	1	1	2	50	6
Modoc	10	21	24			1	56	13
Mono		1					1	
Monterey	16	24	22	1		8	71	2
Napa	5	10	30			8	53	21
Nevada	1	7	6			5	22	7
Orange	12	40	36			18	106	13
Placer	2	3	10		1	4	20	4
Plumas	1	2	2			1	6	1
Riverside	20	32	48	1	4	7	112	16
Sacramento	38	80	142		5	15	280	43
San Benito		1	4				5	3
San Bernardino	27	34	39		13	24	138	3
San Diego	27	52	117	3	18	21	238	54
San Francisco	288	280	296	6	37	68	975	104
San Joaquin	28	34	91	2	41	196	48	
San Luis Obispo	2	15	2			2	21	
San Mateo	23	21	32			8	84	6
Santa Barbara	34	28	25		2	5	94	4
Santa Clara	40	36	78		6	10	170	18
Santa Cruz	1	22	12			5	40	8
Shasta		4	7		2	2	15	6
Sierra			1			1	2	
Siskiyou	2		7			5	14	5
Solano	13	28	27			9	77	3
Sonoma	44	36	15		20	8	123	2
Stanislaus	6	16	29			9	60	2
Sutter	1	5	5			2	13	3
Tehama		1	3			1	5	
Trinity						1	1	
Tulare	10	12	48	1	1	5	77	14
Tuolumne	1		3			1	5	
Ventura	28	62	48	2		15	155	5
Yolo	1	5	7			6	19	2
Yuba	3	4	10			4	21	
Not allocated**	93	213	232	6	20	51	615	22
1943—Total cases	1459	2409	2953	63	200	795	7879	765
1943—Per cent of total cases	20.60	34.00	41.69	.89	2.82		100.00	9.7
1942—Total cases	1333	2114	2734		90	1348	7619	
1942—Per cent of total cases	21.26	33.71	43.60		1.43		100.00	
1941—Total cases	1040	1930	2540		114	1686	7310	
1941—Per cent of total cases	18.49	34.32	45.16		2.03		100.00	

* Other active forms includes quiescent and chronic tuberculosis.

** Other inactive forms includes such terms as "apparently arrested," "arrested," "obsolete," "healed." Entered as missed cases when residence data indicated that cases were acquired in California and reported later.

*** Cases that are "not allocated" represent patients ill or previously diagnosed before entering the State, or those who are itinerants. These cases are not chargeable to any one locality.

per cent. The percentage of cases in individuals who had lived in this State less than one year increased considerably in 1943. In 1942 such cases constituted 8.34 per cent; while in 1943 they constituted 12.49 per cent of the total. In 1941 such cases constituted but 7.6 per cent of the total.

Tuberculosis by Age Groups by Counties

In 1943 most cases of tuberculosis in civilians reported were in individuals more than 45 years of age. The percentage of cases in those over 55 was

TABLE NO. VI
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
COUNTY BY RACE

County	Race									Total
	White	Negro	Mexican	Indian and Red	Chinese	Japanese	Filipino	Other	Unknown	
Alameda	389	58	30	1	24		3		5	510
Alpine										14
Amador	13			1						24
Butte	20	1	1		2					26
Calaveras	7									7
Colusa	4		2							6
Contra Costa	107	2	13		1		1		2	126
Del Norte	4			2						6
El Dorado	9									9
Fresno	60	7	51	3	5		1	1	2	130
Glenn	5									5
Humboldt	15			4					2	21
Imperial	7	5	20				1			33
Inyo	3		2			38				43
Kern	101	13	60		1		5		1	181
Kings	12		12							24
Lake	3		1							4
Lassen	9			1						11
Los Angeles	1860	214	514	5	25	9	16	1	22	2666
Madera	12	1	10							23
Marin	39	4	6	1						51
Mariposa	4		1							6
Mendocino	27	1	2	6	2					38
Merced	24	4	18	1	1		1		1	50
Mono	2			4		50				56
Monterey	42	2	18	2	2		4	1		71
Napa	49		1		2					53
Nevada	21		1							22
Orange	47	1	56							106
Placer	15		2	1						20
Plumas	4									4
Riverside	72	3	35	1						112
Sacramento	202	11	33	3	20		6	2	3	280
San Benito	3		3							6
San Bernardino	78	4	47	1	3				5	138
San Diego	173	10	43	2	3		5		2	238
San Francisco	770	41	15	4	127		15		3	975
San Joaquin	133	9	30		4		17		2	196
San Luis Obispo	13		8							21
San Mateo	76	2	3		2		1			84
Santa Barbara	52	2	33		3		4			94
Santa Clara	115	3	43		2		4		3	170
Santa Cruz	33		1		3		3			40
Shasta	13			2						15
Sierra	2									2
Siskiyou	12	1			1					14
Solano	62	6		1			6		2	77
Sonoma	115	3	3		1	1				123
Stanislaus	50		4				1		5	60
Sutter	10		1					1	1	13
Tehama	5									5
Trinity	1									1
Tulare	41	1	31		3	1				77
Tuolumne	3	1		1						5
Ventura	98	2	46		1	2	1	1	4	155
Yolo	15		3	1						19
Yuba	15	1	3		1					21
Not allocated*	516	45	17	12	11	1	3	4	6	615
Totals	5592	456	1220	67	252	103	98	12	79	7879

* Cases that are "not allocated" represent patients ill or previously diagnosed before entering the State, or those who are itinerants. These cases are not chargeable to any one locality.

17.97 per cent; 45 to 54, 15.33 per cent. The next age group in which the disease was most prevalent was 25 to 29 years, 11.69 per cent; followed by the group 30 to 34 years, 11.3 per cent; and 20 to 24 years, 11.1 per cent.

By Race

Out of a total of 7,879 cases of tuberculosis in civilians reported in California in 1943, 71.69 per cent

TABLE NO. VII
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
BY COUNTIES ACCORDING TO LABORATORY FINDINGS

County	Laboratory tests					Total
	Positive sputum	Negative sputum	Other positive tests	Autopsy	Bacteriological work not stated but includes other clinical tests	
Alameda.....	156	94	19	9	232	510
Alpine.....						
Amador.....	10	1			3	14
Butte.....	12	1	4		7	24
Calaveras.....	5	1			3	9
Colusa.....	5				1	6
Contra Costa.....	49	19	4		54	126
Del Norte.....	1	1			4	6
El Dorado.....	4	1			4	9
Fresno.....	80	41			9	130
Glenn.....	1				4	5
Humboldt.....	10	5			6	21
Imperial.....	13	2			18	33
Inyo.....	12	10			21	43
Kern.....	38	12	5		126	181
Kings.....	4	2			18	24
Lake.....	2			1	1	4
Lassen.....	4				7	11
Los Angeles.....	822	496	24	5	1310	2656
Madra.....	4	6			12	23
Marin.....	19	6			26	51
Mariposa.....	3		2		1	6
Mendocino.....	10	2			26	38
Merced.....	17	7	3	2	21	50
Modoc.....	27	13			16	56
Mono.....	1				1	2
Monterey.....	23	12	4		32	71
Napa.....	22	5			26	53
Nevada.....	8	2	1		11	22
Orange.....	32	25	1	1	47	106
Placer.....	9	7	1		3	20
Plumas.....	3	1			2	6
Riverside.....	34	16	5	10	47	112
Sacramento.....	122	57			101	280
San Benito.....	1				5	6
San Bernardino.....	37	12	2		87	138
San Diego.....	90	45	6	2	95	238
San Francisco.....	152	85	11	10	717	975
San Joaquin.....	74	30	1	2	89	196
San Luis Obispo.....	7	2	1		11	21
San Mateo.....	38	17	2	1	26	84
Santa Barbara.....	24	12	1		57	94
Santa Clara.....	67	26	1	2	74	170
Santa Cruz.....	16	5		1	18	40
Shasta.....	2	5			8	15
Sierra.....	1	1			2	4
Siakiyou.....	3	3			8	14
Solano.....	39	9			29	77
Sonoma.....	15	22			86	123
Stanislaus.....	21	17	1		21	60
Sutter.....	8	2			3	13
Tehama.....	2			1	2	5
Trinity.....					1	1
Tulare.....	24	14	2	1	31	77
Tuolumne.....	1	2			2	5
Ventura.....	31	9		1	113	155
Yolo.....	8	3			8	19
Yuba.....	8	3			10	21
Not allocated*	223	135	3		254	615
1943—Total cases.....	2452	1304	105	50	3968	7879
1943—Per cent of total cases.....	62.69	33.34	2.68	1.28		100.00
1942—Total cases.....	2451	1223	153	44	3748	7619
1942—Per cent of total cases.....	63.32	31.56	3.95	1.14		100.00
1941—Total cases.....	2425	1251	72	75	3457	7310
1941—Per cent of total cases.....	63.43	32.73	1.88	1.96		100.00

* Cases that are "not allocated" represent patients ill or previously diagnosed before entering the State, or those who are itinerants. These cases are not chargeable to any one locality.

were in members of the white race; 15.64 per cent in Mexicans; 5.85 per cent in negroes; 3.23 per cent in Chinese; 1.32 per cent in Japanese; 1.26 per cent in Filipinos. It is interesting to note that most cases of tuberculosis in members of the white race were reported in individuals more than 45 years of age, while most cases of tuberculosis in Mexicans were in individuals between 15 and 24 years of age. Most cases of tuberculosis in the older age groups among whites were in males. There were 1,623 cases of tuberculosis reported in males 45 years of age and over, and but 482 such cases in women 45 years of age and over. Among Mexicans in the age group 15 to 24 years there were 201 cases reported in males and 227 cases in females. Out of a total of 7,879 cases reported last year, 5,027 were in males and 2,852 in females.

Tuberculosis According to States of Origin

In 1943, 615 cases of tuberculosis were reported in California among residents of other States. In 1942 such cases totaled 472 and in 1941, 349. This would indicate that the migration, due to war conditions, has brought more cases of tuberculosis into California.

The States that contributed the greatest number of cases of tuberculosis in 1943 were New York, 59; Oklahoma, 44; Texas, 43; Illinois, 43; Arizona, 38; foreign countries, 30; Nevada, 29; Arkansas, 27. Most of the cases reported in 1942 came from the same States.

TABLE NO. VIII
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
TUBERCULOSIS CASES NOT ALLOCATED TO CALIFORNIA COUNTIES
ACCORDING TO STATES OF ORIGIN

State of origin	Number of cases			State of origin	Number of cases		
	1943	1942	1941		1943	1942	1941
Alabama.....	4	4		North Dakota.....	4	4	3
Arizona.....	38	34	25	Ohio.....	18	14	5
Arkansas.....	27	14	5	Oklahoma.....	44	29	10
Colorado.....	22	14	5	Oregon.....	22	19	9
Connecticut.....	3	3	3	Pennsylvania.....	14	10	6
Delaware.....				Rhode Island.....		2	
Florida.....	4	4		South Carolina.....	8	5	6
Georgia.....	6	1	1	South Dakota.....			
Idaho.....	2	1	1	Tennessee.....	7	5	1
Illinois.....	43	29	14	Texas.....	43	33	21
Indiana.....	9	7	3	Utah.....	4	6	6
Iowa.....	9	9	2	Vermont.....			
Kansas.....	14	11	7	Virginia.....	2	4	4
Kentucky.....	2	6	1	Washington.....	25	26	18
Louisiana.....	8	2	1	West Virginia.....			
Maine.....				Wisconsin.....	9	6	2
Maryland.....	4	2	1	Wyoming.....	5	2	1
Massachusetts.....	4	7	4	Hawaii.....	8	8	8
Michigan.....	10	7	9	Philippine Islands.....	1	2	3
Minnesota.....	14	13	6	Canal Zone.....	3		
Mississippi.....	3			Other Foreign Countries.....	30	9	13
Missouri.....	18	13	20	Alaska.....	5	1	1
Montana.....	1	1	2	Washington, D. C.....	2	3	1
Nebraska.....	6	4	4	Transient.....	3	6	21
Nevada.....	29	32	36	California*.....	4	11	
New Hampshire.....		2	1				
New Jersey.....	6	5	8				
New Mexico.....	12	12	3				
New York.....	59	32	31				
North Carolina.....		2					
				Totals.....	615	472	349

* Traveling around in California, no definite county residence.

TABLE NO. IX
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
BY COUNTIES ACCORDING TO AGE GROUPS

County	Age groups												Total
	Under 1 year...	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55+	
Alameda	1	15	14	7	29	56	55	60	40	48	75	99	510
Alpine													14
Armadillo													27
Butte													6
Calaveras													126
Colusa													6
Contra Costa													126
Del Norte													6
El Dorado													9
Fresno													130
Glenn													5
Humboldt													23
Imperial													43
Kern													181
Kings													24
Lake													4
Lassen													11
Los Angeles	7	34	30	59	189	298	351	311	265	237	301	489	2668
Madera													5
Maricopa													6
Manipio													38
Merced													10
Modoc													6
Monterey													1
Napa													13
Nevada													12
Oroville													22
Placer													8
Plumas													20
Riverside													6
Sacramento													112
San Benito													280
San Bernardino													13
San Diego													238
San Francisco													975
San Joaquin													108
San Luis Obispo													21
San Mateo													94
Santa Barbara													84
Santa Clara													170
Santa Cruz													15
Shasta													15
Siskiyou													2
Sonoma													14
Stanislaus													77
Sutter													123
Tehama													60
Tulane													13
Tulare													1
Yuba													77
Not allocated*													5
1942—Total cases	24	131	114	181	576	872	918	887	805	729	1204	1411	7879
1943—Per cent of total cases	31	1.67	1.45	2.31	7.34	11.10	11.69	11.30	10.25	9.28	15.33	17.97	100.00
1942—Total cases	20	153	116	186	532	847	1702	1702	1599	1187	1245	32	7619
1942—Per cent of total cases	26	2.02	1.53	2.45	7.01	11.16	22.43	22.43	21.07	15.64	16.43	0.41	100.00

TABLE NO. X
PULMONARY AND OTHER FORMS OF TUBERCULOSIS—1943
BY AGE ACCORDING TO RACE AND SEX

Race and sex	Age groups												Total by sex	Per cent by race 1943	Per cent by race 1942	Per cent by race 1941
	Under 1 year...	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-54	55+				
White:																
Male	10	39	30	32	120	216	316	392	400	384	741	882	9	3580	71.69	71.28
Female	3	37	31	34	139	289	346	288	209	145	202	280	9	2012		
Negro:																
Male	2	3	1	7	16	42	46	30	31	84	44	36	294			
Female	2	3	3	6	15	35	27	23	15	6	16	11	162			
Mexican:																
Male	2	31	18	21	100	101	70	62	54	64	90	82	1	696	5.85	4.09
Female	4	14	19	53	121	106	45	25	39	24	40	32	2	524		
Indian and red:																
Male	1	3	2	3	7	3	4	1	1	1	1	0	35		.86	1.02
Female	1	2	2	6	6	5	6	1	1	1	1	5	32			
Chinese:																
Male	2	2	9	19	26	21	26	24	27	26	21	21	203		3.23	2.71
Female	1	3	4	14	11	3	2	3	3	3	3	2	49			
Japanese:																
Male	1	1	2	3	9	6	4	4	4	4	4	28	85		1.32	2.92
Female	1	3	2	3	12	7	1	1	1	1	1	2	38			
Filipino:																
Male	1	1	1	1	3	9	22	15	20	16	16	4	92		1.26	1.04
Female	1	2	1	2	1	2	1	1	1	1	1	1	6			
Other races:																
Male	1	1	1	1	1	1	1	1	1	1	1	1	10		.15	.57
Female	1	1	1	1	1	1	1	1	1	1	1	1	2			
Unknown:																
Male	1	1	1	1	1	1	1	1	1	1	1	1	52			
Female	1	1	1	1	1	1	1	1	1	1	1	1	27			
Total male	16	76	54	74	275	406	480	543	538	545	935	1073	12	5027	4329	4495
Total female	8	55	60	107	301	456	438	344	267	184	269	338	15	2832	2790	2815
1943—Total cases	24	131	114	181	576	872	918	887	805	729	1204	1411	27	7879		7310
1943—Per cent of total cases	31	1.67	1.45	2.31	7.34	11.10	11.69	11.30	10.25	9.28	15.33	17.97	100.00			
1942—Total cases	20	153	116	186	532	847	1702	1702	1599	1187	1245	32	7619			
1942—Per cent of total cases	26	2.02	1.53	2.45	7.01	11.16	22.43	22.43	21.07	15.64	16.43	0.41	100.00			

* Cases that are "not allocated" represent patients ill or previously diagnosed before entering the State, or those who are itinerant. These cases are not chargeable to any one locality.

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those who are itinerant. These cases are not chargeable to any one locality.